

City of Rio Rancho, New Mexico

WATER RESOURCES MANAGEMENT PLAN

Final Report & Policy Recommendations

August 1, 2004 (Draft)



ACKNOWLEDGEMENT

The City of Rio Rancho Utilities Department would like to thank the Water Resources Management Plan Steering Committee for their hours of hard work and dedication assisting in developing the recommendation included in this report. Steering Committee Members are listed in Appendix D of this report. The Committee remained true to their Mission Statement throughout the year long planning process.

The Mission of the Water Resources Management Plan Steering Committee is to develop a long-term plan for the management of water resources in the City of Rio Rancho. The Committee recognizes that community education and public participation are vital components of this mission. The Committee will develop goals, refine and evaluate options, propose actions, and make recommendations to guide the Rio Rancho Utilities Commission. The recommendations will address strategies, policies, regulations, and standards that will shape the City's water future.



Table of Contents

I.	EXECUTIVE SUMMARY	1
II.	INTRODUCTION.....	7
III.	HISTORY.....	8
IV.	EXISTING CONDITIONS	13
V.	POPULATION AND DEMAND PROJECTIONS	18
VI.	WATER REUSE	21
VII.	RECOMMENDED POLICIES TO IMPLEMENT THE WATER RESOURCES MANAGEMENT PLAN, AS DEVELOPED BY THE STEERING COMMITTEE AND PUBLIC PROCESS	27
	Policies Related To Conservation	27
	Policies Related To Education	32
	Policies Related To Utility System Improvements.....	34
	Policies Related To Regulatory and Legislative Action.....	38
	Policies Related To Growth	39
	Policies Related To Community Development.....	40



List of Figures

Figure IV-1 - Annual Water Production

Figure IV-2 - Water Use by Customer Category

Figure IV-3 - Average Residential Water Use

Figure IV-4 - Average Daily Pumping per Month

Figure IV-5 - Arsenic Concentrations in City Wells

Figure V-1 - Population Projections

Figure V-2 - Projected Water Demand

Figure V-3 - Permitted Pumping

Figure VI-1 - Reclaimed Water Use Using Preferred Reuse Alternative

Figure VI-2 - Reclaimed Water Use Using the No Action Alternative

Figure VI-3 - Cumulative Impact on Groundwater Pumping under Preferred Scenario

Figure VI-4 - Reclaimed Water Facility Capital Costs

Figure VI-5 - Capital Costs for Injection Alternative

List of Appendices

Appendix A – Existing Conditions Report

Appendix B – WRMP Steering Committee Members and Represented Interests

Appendix C – WRMP Steering Committee Meeting Summaries

Appendix D – Mission, Vision and Values Statement and Summary of Public Meetings



I. EXECUTIVE SUMMARY

Rio Rancho is a growing municipality that must address today's water dilemmas to sustain its quality of life and provide for future generations. The Water Resources Management Plan outlines existing conditions, identifies key water use issues, targets water supply challenges facing the City and incorporates recommendations from the Wastewater Reuse Strategy. The outcomes of the Water Resources Management Plan are contained in a series of policies that must be implemented to use the community's water resources in a prudent and efficient manner.

Effective management of the City's water resources is critical to the health and welfare of all city residents, current and future. The Water Resources Management Plan contains a considerable amount of background information, future projections, and public policy directives that warrant detailed examination and deliberation.

Implementation of the plan and policies will require a strong commitment by our City Officials to enact policy intended to change individual behavior, reinvent City policy, and modify state regulations. Lastly, adequate and timely financial support is vital

to achieving the goal of a sustainable water supply for Rio Rancho.

The Water Resources Management Plan is intended to guide the City forward in establishing policies to address a dynamic resource. As such, the Plan must be reviewed in light of accomplishments and future challenges on a regular basis. To establish a benchmark, a schedule should be developed upon adoption of the Plan that would identify the time frame for implementing the various policies and actions. The Water Resources Management Plan Steering Committee recommends that the Plan be reviewed, evaluated, and updated every five years to monitor the performance of the implemented policies, and to revise policies as required.

Background

In 1961, Rio Rancho Estates, Inc. (hereinafter, "AMREP") purchased 55,000 acres as an investment. In the years immediately following the purchase, a plan was created to subdivide the property into tens of thousands of lots and sell them using mass marketing and mail order techniques. AMREP platted and sold this land as Rio



Rancho Estates in half-acre and one-acre lots to tens of thousands of absentee property owners through mail order sales in the 60s and 70s. In 1966 the 100th family moved into the community and by 1970, “Rio Rancho Estates” had grown to 91,000 acres with the purchase of an additional 35,000 acres of King Ranch property. The City of Rio Rancho incorporated in 1981 with a population of 10,131 persons. The utility system remained in private hands until 1995, when the City exercised its right of eminent domain and purchased the water and wastewater systems.

Rio Rancho relies totally on groundwater (water that is contained in the aquifer beneath the city). Approximately 21 public wells, along with numerous private domestic wells, provide water to the 62,000 residents. Currently, the City pumps approximately 3.6 billion gallons of water annually (or 11,000 acre-feet) to meet Rio Rancho’s water demands. Over the years, water pumping has grown, along with the City’s population. Despite continued community growth, water pumping has remained fairly constant since 1999, due to a decrease in industrial demand and recognition of the need to conserve water.

The City has five water classifications: Residential, Commercial, Industrial, City/Public, and Irrigation. Unaccounted water is also quantified. Unaccounted Water represents the difference between the amount of water pumped from the City wells and metered into the utility system and amount of water that is sold to customers; it results from leaks and inefficiencies in the system. From 1999 to 2003, Unaccounted Water increased from 7% to 20%, while industrial use dropped from 12% to 3%. Presently, approximately 59% of the total water pumped is for Residential use, 15% for Commercial, and 7% for City/Public customers. Additionally, it is estimated that approximately 40% of Rio Rancho’s water is used for seasonal evaporative cooling and irrigation.

It is difficult to know the total amount of groundwater that is pumped in Rio Rancho, because of the number of homes with private domestic wells. It is estimated that about 2,500 residences are served by domestic wells, representing a population of about 7,000. The reason for the relatively high number of domestic wells is that individual lot owners outside of the utility service area may drill their own wells. The New Mexico Office of the State Engineer (OSE) traditionally issues permits to

property owners for domestic wells upon request. Records of these wells have been difficult to gather and document, and both the City and the State Engineer are working to identify present wells. To protect future groundwater quality, changes in OSE regulations may allow cities the opportunity to participate in permitting future domestic wells.

As of the year 2002, the State Engineer had approved permits for the City to pump up to 14,419 acre-feet of water per year.. In 2002 the City was permitted to pump an additional 12,000 acre-feet per year. A condition of the pumping permits is that the City must purchase water rights, on a

schedule developed by the State Engineer, when the pumping has an impact on surface water in the Rio Grande. Currently, although the City pumps 10,500 acre feet per year, it must only own about 2,000 acre-feet of water rights to offset the surface water impacts. The City will be required to purchase additional water rights in the future to meet the OSE schedule. Rights for an acre-foot of water currently cost about \$5,000.00, not including the legal and administrative costs for

evaluating the authenticity of the right or transferring the right and point of diversion to the City.

The population of Rio Rancho has grown steadily from 1961 to present. Its rate of growth was exceptionally strong from 1980-1990. Population projections provided by the New Mexico Bureau of Business and Economic Research (BBER) show that by the year 2020 Rio Rancho's population will

approach 100,000 and by 2040 the population will reach 150,000.

These projections

may be on target, given

that in recent years Rio Rancho has grown by about 700-900 homes per year (or about 2,500 persons), and that requests for new home permits have increased to 1,000 new homes per year. In short, the City is growing by almost 3,000 persons per year. At the current usage of water, future water demands will double by 2020 and then triple by 2040. Currently, the City's per capita use



New residential housing development in Los Milagros subdivision



of water is approximately 181 gallons per capita per day (gpcd).¹

Water Reuse Strategy

Recognizing the challenges of meeting growing water demand while maintaining water quality, the Governing Body authorized the development of a Water Reuse Strategy in 2001.² The Water Reuse Strategy aimed to evaluate options including treating wastewater to acceptable levels for reuse in outdoor watering and irrigation. The Water Reuse Strategy identifies the options, costs, and implementation schedule for increased reuse of treated effluent. The initial phase of the strategy calls for increasing the amount of reclaimed water used for irrigating large turfed areas, such as parks, sports fields and large common areas within subdivisions. Currently, the City

delivers this treated and reclaimed water to the Chamisa Hills Golf Course and Vista Verde Memorial Park. Infrastructure must be built to store and deliver additional reclaimed water to a larger portion of the community.

Future expansion of the water reuse program includes public/private partnerships with commercial and industrial customers for use of reclaimed water. Aquifer recharge is the ultimate goal to reduce Rio Rancho's dependence on this resource and begin replenishing the groundwater. This goal can be accomplished by allowing water to percolate through the soils down to the aquifer or by injecting highly treated water directly into the water bearing strata of the aquifer. There are a number of regulatory issues to be resolved to implement either of these strategies.

Public Process for Development of the Plan

The Water Resource Management Plan (WRMP) culminates the work of the Steering Committee. The Committee's work was based on an extensive public participation process and technical support from the Rio Rancho Utilities Department. The process began in the summer of 2002 with the appointment of a diverse 26-

¹ The per capita (or per person use figure) is commonly used to make comparisons between cities and regions, and to evaluate conservation and use of municipal water. The "gpcd" figure is calculated by dividing the total water pumped annually by the population served in the utility system. This includes all water used for residential, commercial, industrial, public, and unaccounted water.

² Developed in conjunction with Montgomery, Watson, Harza Engineering, 2002.

member steering committee selected to work with the Rio Rancho Utilities Department technical staff and consultants. The Steering Committee met twice a month for nearly a year, listening to presentations on the City utility system and learning about water use demands. The Committee also learned about Rio Rancho's water rights, as well as regional water planning efforts in the Middle Rio Grande Basin.

In addition, the Committee learned about the experience of other cities and technologies for conservation and water reuse. The Committee debated alternatives for the effective management of the City's water resources, rated them according to cost, impact, timing and implementation, and recommended policies for adoption by the Utilities Commission and the City's Governing Body. The Steering Committee and City staff presented this information and policy options in a series of public meetings designed to gather reaction from Rio Rancho residents. A detailed presentation of these recommendations is included in Section VII of this report. Policy recommendations were divided into six categories: Conservation; Education; Utility System Improvements and Enhancements; Regulatory and Legislative Actions; Growth; and Community Development.



Members of the WRMP Steering Committee visit the Gilbert, AZ Infiltration Pond/Nature Reserve.

Policies Related To Conservation

Water conservation is the most immediate and effective way to constrain water demand while providing sufficient resources for growth. Ten policy recommendations related to conserving water were developed.

Policies Related To Education

Throughout the process, both the Committee and public emphasized the need for public education focused on the limited resource and practices for efficient use of water. Educational programs aimed at schools and civic and neighborhood organizations are included in the five policy recommendations developed by the Steering Committee.



Policies Related To Utility System Improvements and Enhancements

Nine policy recommendations are directed at improving utility planning, development, and implementation of technical approaches to improving resource management. The policies include directives for distribution and collection system planning, investments in technology, and management of on-site systems.

Policies Related To Regulatory and Legislative Actions

Recognizing that some of the goals of the Water Resources Management Plan would require modification to existing state policies, four policy recommendations address the required support for obtaining these modifications.

Policies Related To Growth

The Committee felt strongly that the intent of the Water Resources Management Plan is to implement policies that will support

sustainable growth of the community. Three policies were developed to address future growth in recognition of Rio Rancho's Vision 2020-Integrated Comprehensive Plan.

Policies Related To Community Development

In Rio Rancho, the City Development Department is the lead City agency for establishing planning, zoning, subdivision, and development requirements. The Committee concluded that the City Development Department is integral to future management of water resources. Eight policies focus on the City's policies and sensitivity to the critical limitations on water resources and maximize efficient use of water.



II. INTRODUCTION

Overview of the Water Resources Management Plan Project

The City of Rio Rancho began development of its Water Resources Management Plan in 2001. The purpose of the plan was to identify the means and methods for creating a sustainable water supply for the city of Rio Rancho. Initial efforts focused on preparing an assessment of the current state of the water resources. The Existing Conditions Report, prepared by Wilson & Company Inc., Engineers & Architects, served as a baseline for developing the plan and identifying issues to be considered. The Existing Conditions Report is included in Appendix A

In 2002, in light of proposed Sandia Pueblo effluent discharge standards, the Rio Rancho Governing Body directed the Utilities Department to take immediate steps to discontinue discharging to the Rio Grande and

begin reusing all treated effluent. The directive was to reach total reuse, or zero discharge, by 2008. In response, the City Utilities Department retained Montgomery, Watson, Harza, Inc. to begin work on the Wastewater Reuse Study. This study, completed in 2002, outlined a strategy for expanding the City's existing reuse to include additional irrigation, potential industrial reuse, and recharge of the aquifer. With the Existing Conditions Report and the Reuse Strategy completed, the City established a citizen steering committee to review the work to date, examine alternatives, and make recommendations for developing a sustainable water supply for the City of Rio Rancho.

Water Resources Steering Committee

In August 2002, the Rio Rancho Utilities Commission and Utilities Department staff solicited volunteers to serve on the Water Resources Management Plan Steering Committee and to advise them on the preparation of a comprehensive Water Resources Management Plan for the City of Rio Rancho. The 26-member Steering

Committee was comprised of residents, business owners, students, and representatives from neighborhood associations and community interest groups. The Committee was carefully structured to reflect a cross-section of the community, including diverse interests, backgrounds and opinions. A listing of



Steering Committee members and interests they represent may be found in Appendix B.

Mandate and Planning Process

At the first meeting, the Director of the Utilities Department stated that the Committee was empowered to develop alternatives for the future use of water for the City of Rio Rancho, propose solutions, refine options for action, and make recommendations to the Utilities Commission. During its deliberations, a series of public meetings were held to test ideas and gather new information. The meetings were designed to provide the committee with information, stimulate public discussion, and gather reactions about the Water Resources Management Plan. The public meetings provided opportunities for the Steering Committee to learn about citizen concerns as well as gain insight to alternative policies and proposals.

The Utilities Department staff and technical consultants were responsible for informing the Steering Committee about the City's existing water resource conditions, as well as the capabilities of the present utility system. The staff advised the Committee about legal constraints, existing water rights, and future water acquisition opportunities.

Mission, Vision, Values and Ground Rules

To launch the planning process the Steering Committee developed a practical vision of Rio Rancho's water future, as well as defined key values and principles that would guide the planning process. The Committee agreed to a set of ground rules that outlined the overall planning process and established operating principles and decision-making guidelines. The Committee defined a clear mission for its work:

The Mission of the Water Resources Management Plan Steering Committee is

"to develop a long-term plan for the management of water resources in the City of Rio Rancho. The Committee recognizes that community education and public participation are vital components of this mission. The Committee will develop goals, refine and evaluate options, propose actions, and make recommendations to guide the Rio Rancho Utilities Commission. The recommendations will address strategies, policies, regulations, and standards that will shape the City's water future."

The Committee's Planning Process

The planning process was designed to encourage the Committee to understand each other's views and learn about Rio Rancho's water resources. The committee process began with a discussion of the Vision 2020-ICIP Plan, presented by City

Development staff, to remind members of the goals and outcomes incorporated into the City's Comprehensive Plan. The Middle Rio Grande Water Assembly addressed the committee to share their progress and approach to regional water planning. The Committee heard numerous presentations regarding the existing conditions, wastewater reuse, water resource management in other communities, as well as other issue-specific topics. Members of the Steering Committee also made a field trip to learn from other communities that are leaders in water conservation, water reuse, and water re-injection technology.

The Committee met twice a month from August 2002 to June 2003. Additionally, the Committee participated in several workshops to define its mission, develop a vision of the

future, and identify community values to be protected through the process. Appendix C provides summaries of the



Members of the Public listen as information is presented on Rio Rancho water resources at a Public Meeting

Steering Committee meetings and workshops.

In addition to the Steering Committee meetings, a series of four public meetings were held to gather comments as the Steering Committee

proceeded with their task. Steering Committee members participated in all small group discussions at the Public Meetings to ensure that public comments were brought back to the Committee. The theme for the four Public Meetings were:

December 14, 2002 – “Listening to Concerns”

February 22, 2003 – “Discussing Options / Gaining Reactions”

April 12, 2003 – “Testing Alternatives / Reviewing Preferences”

June 28, 2003 – “Presenting the Plan”

Appendix D includes a memorandum on the committee's mission, vision, values, ground rules and summaries from the Public Meetings.



III. HISTORY

Rio Rancho Estates's history goes back only to the early 1960s and the American Real Estate and Petroleum Corporation, AMREP. The AMREP Corporation purchased the Koontz Ranch, land northwest of Albuquerque in the early 1960s. The company began to market and develop the 90,000 acres by selling home-sites to people in the East and Midwest. It was one of the most widely marketed land development programs in the U.S.

Between 1961 and 1977, AMREP sold more than 75,000 lots to thousands of people in other parts of the country. The company marketed Rio Rancho and New Mexico intensely. The development of Rio Rancho coincided with a national trend of migration to the Sunbelt areas of the country. Home construction began in 1963. In 1964, with a population between 75 and 100, the community formed a volunteer fire department, and by 1969, could boast 1,500 residents. In 1970, the Rio Rancho Golf and Country Club was built, and the 500th family moved to town. By 1971, the city had 2,500 residents, 904 homes, and its first shopping center. By 1974, the population of Rio Rancho reached 5,377.

The city continued to grow, in part because Albuquerque residents also began moving to Rio Rancho. In 1981, 86% of the voters turned out to vote for incorporation as the City of Rio Rancho. At the time, there were 10,131 residents; less than 10% of the land AMREP owned – slightly more than 8,000 of the 90,000 acres – was incorporated into the city limits.

Prior to 1980, many of the area's residents were retirees or people from out-of-state. In the 1980s, the demographics of the community changed with a large influx of first-time homebuyers and families. The location of an Intel Corporation computer chip manufacturing plant brought several thousand jobs to the city in the mid-1980s, and had a major impact on the community. Between 1980 and 1990, the population more than tripled and business expanded to meet the growing demand. Many young families moved to Rio Rancho, and about 80% of those people came from Albuquerque, not from the East and the Midwest as had the original residents.

By 1990, Rio Rancho had 35,000 residents and became the state's 6th largest city. In



1992, voters approved a Home Rule Charter for Rio Rancho, allowing the City more ability to govern itself and make its own rules and regulations.

The 1990 census showed 30% of Rio Rancho residents were under 18 years of age. Throughout the 1990s, the City continued to grow and become more diverse. In 1995, Rio Rancho's population was estimated at 47,000, the 4th largest city in the state and growing at an average of 2,000 people per year. In 2000, with a population of 51,765, Rio Rancho accounted for 58% of the population of Sandoval County. Population projections indicate that by 2020 the population will approach 100,000.

With the annexation of the Mariposa area and Quail Ranch area, the city has grown to over 100 square miles, or 65,000 acres. Of this area, less than 15% is developed. Much of the remaining area consists of subdivided land in lots one-half acre and larger, individually owned by persons throughout the country. Development is continuing at rates exceeding the recent past, and building permit issuance is increasing from a rate of 700 per year in past years to over 1,000 per year. Further, where most all past development was driven by AMREP, with the new annexations new developers will be participating in designing Rio Rancho's future.

The Utility System

Utility services to support Rio Rancho Estates were provided by Albuquerque Utilities Corporation (AUC), a wholly owned subsidiary of AMREP. The company was created to maintain and operate water and wastewater utility systems for the growing development. In 1964, AUC began drilling wells and constructing the piping networks to serve new subdivisions. Many of the individual lots sold by AMREP, however, were outside of the utility service area. Development of these individual lots required

homeowners to drill their own domestic wells and construct on-site septic systems.

The development approach of Rio Rancho Estates, that is, selling 75,000+ individual lots, created unique challenges for utility expansion. A more traditional development approach is for a single developer to take a large piece of land, create a subdivision, and construct roads and utilities to serve the individual lots, similar to other Rio Rancho subdivisions like Rivers Edge, Enchanted Hills, and



Northern Meadows. Within Rio Rancho, large tracts of land have been subdivided into one-half acre lots and sold to individuals. These areas, such as Unit 17, north of Northern Blvd. and west of Hwy. 528, are characterized by dirt roads with limited water or sewer utilities. Property owners in these areas continue to drill their own wells and construct septic systems in order to occupy their property. The proliferation of domestic wells and septic systems is a major concern for management of the City's water resources and protection of the groundwater supplies.

AUC continued to operate as a privately owned public utility until it was sold to General Water Works, Inc. (GWWI) in 1990. A second sale, from GWWI to United Water, Inc., occurred in 1995. The City of Rio Rancho chose to purchase the utility company in 1995 by exercising their right of eminent domain. The purchase was finalized by court

decree in 1996. Currently, debt service from the purchase of the utility represents about one-third of the monthly user fee.

An asset inventory prepared by the City in 2002 identified the following water system components:

- 305 miles of water pipes
- 23.7 million gallons of storage capacity
- 19 operational wells
- 4 permitted wells to be drilled in the future

Wastewater system components include:

- 125 miles of sewer pipes
- 21 lift stations
- 4 wastewater treatment plants
- 2 water reclamation facilities under construction

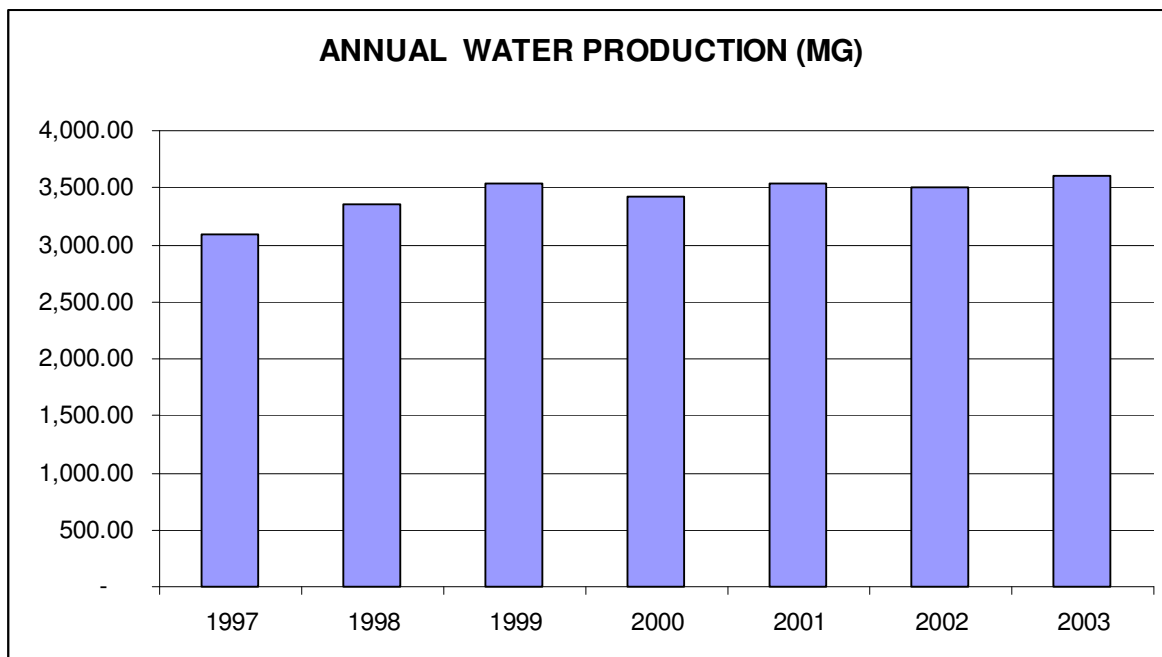
IV. EXISTING CONDITIONS

Water Production

The City pumps about 3.5 billion gallons (about 11,000 acre-feet) of water each year. Figure IV-1 shows the annual water production for the years 1997-2003. Water production over this period increased during the years of 1997 to 1999, reflecting the growth in the community. Water production

for 1999 to 2003, however, has remained reasonably constant despite continued growth demonstrated by a 28% increase in residential water accounts, due to conservation efforts and reduced usage in the industrial sector.

Figure IV-1. Annual Water Production



Water Use

The City of Rio Rancho measures all water use in the city and categorizes the users into

five categories. The five basic categories are Residential (water measured by meters

serving homes), Commercial (metered water at businesses such as restaurants and retail stores), Industrial (water metered at manufacturing type facilities), City/Public (water metered at city owned facilities such as libraries and fire/police stations), and Unaccounted Water. “Unaccounted Water” (UAW) is the difference between water measured leaving the well vs. the water measured at the meters, usually caused by leaks, faulty meters, or fire hydrant use.

Changes in the way accounts are categorized make direct comparisons from years prior to 2003 difficult. However, well production and metered water use data clearly indicates the Residential category as the main consumer, followed by Commercial, with a recent increase in Unaccounted Water.

Although the overall percentage represented by residential use has remained constant, average use per residence has decreased, as shown in Figure IV-3. In the late 1990s, the average residence (excluding multi-family housing) used an average of 120,000 gallons per year or 10,000 gallons of water per month. In 2001 and 2002 this volume had

decreased to an average of 110,000 gallons per year or 9,000 gallons per month, and in

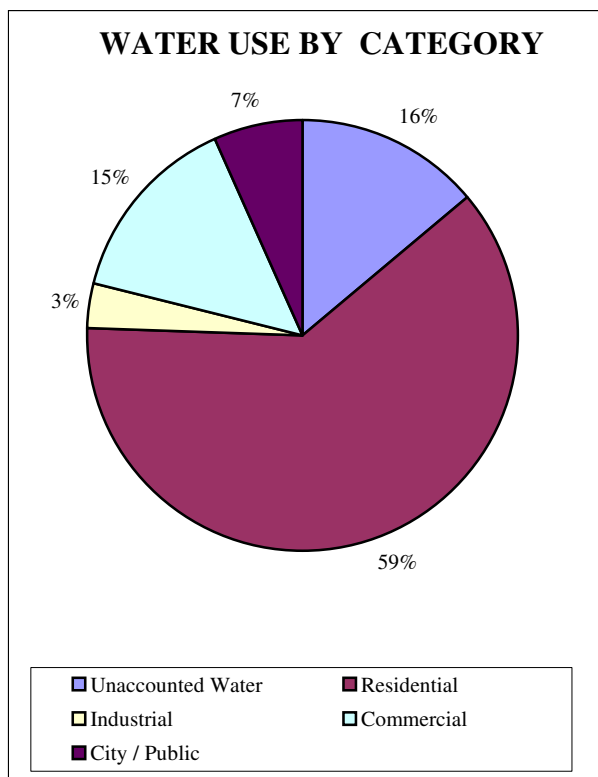


Figure IV-2 Typical water use by Customer Category for Rio Rancho

2003 the average use per month decreased again to just over 8,000 gallons per month, due largely to conservation efforts by the public and new construction of more water efficient houses. This trend is likely to continue, however the earlier usage figures have been used for projections.

Figure IV-3. Average Water Use per Residence, 1997 - 2003

YEAR	TOTAL METERS	TOTAL GALLONS	GALLONS per METER	GALLONS per MONTH
2003	20,670	2,023,399,000	97,891	8,158
2002	19,172	2,071,370,000	108,041	9,003
2001	17,903	2,014,627,000	112,530	9,378
2000	17,086	1,982,212,000	116,014	9,668
1999	16,093	1,822,000,000	113,215	9,435
1998	15,432	1,891,000,000	122,541	10,212
1997	14,729	1,730,000,000	117,459	9,788

Similarly, Industrial use has dropped considerably in recent years, due in part to Intel's use of water from its own wells. For projection purposes, a reserve of 600 million gallons per year for industrial use has been

used. Although City/Public water use is expected to increase somewhat in the future, it is not expected that the increase will be as significant as the population growth.

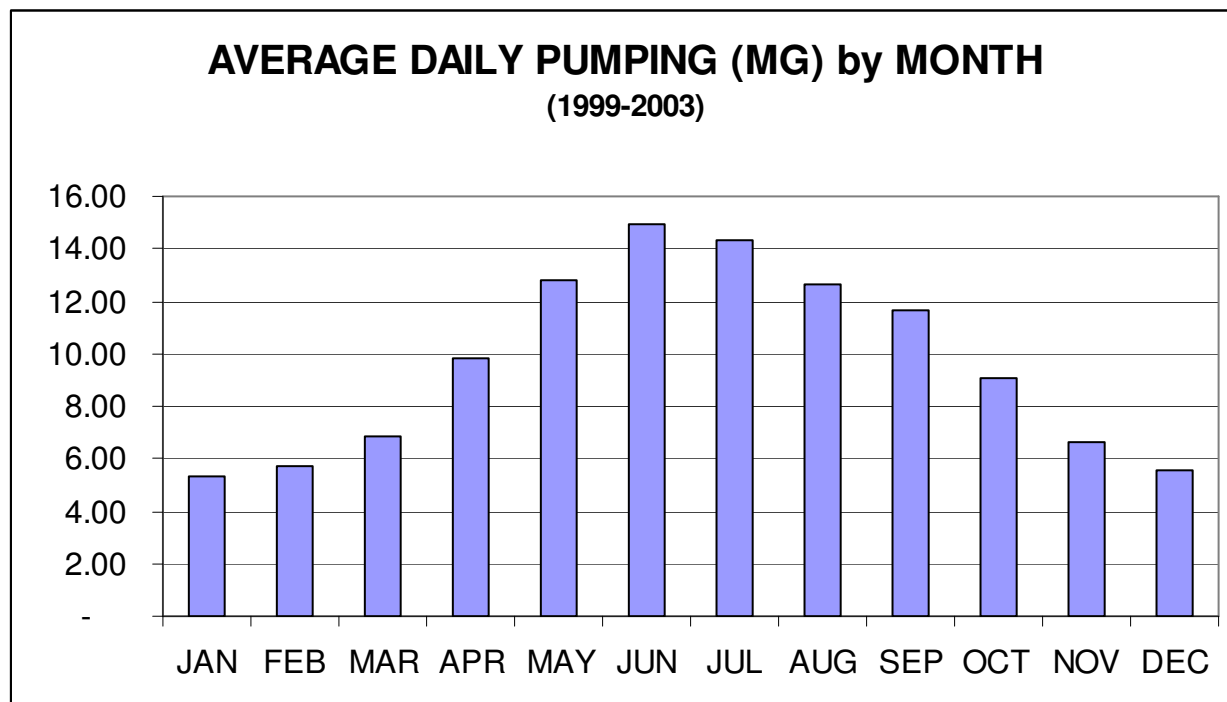


Figure IV-4. Total Average Daily Water Pumping per Month

Figure IV-4 shows the average daily water pumping for each month of the year, based on the years 1999-2003. In January, the average

daily pumping into the system is just over 5 million gallons, as compared to June when the average daily pumping exceeds



14 million gallons per day. This figure demonstrates the volume of water that is generally considered outdoor use. The water industry typically uses the winter months of December through February as the measure of indoor water use, which is about 6 million gallons per day for Rio Rancho. Indoor water use is not believed to vary significantly by season, and therefore water use in excess of

the 6 million gallon baseline is assumed to be for outdoor use, irrigation, etc. Over the 5-year average, this outdoor use accounted for approximately 40% of the total annual water use in Rio Rancho. Recognizing this water demand for non-potable uses is part of the reason the City has developed the Water Reuse Strategy discussed later in this report.

Water Quality

When discussing the conditions and sustainability of Rio Rancho's water resources, one important issue that must be mentioned is water quality. The best source of water quality information is the Water Supply System Annual Report prepared by the Rio Rancho Utilities Department. This report includes the Consumer Confidence Report (CCR), which the United States Environmental Protection Agency (EPA) requires every public water supplier to produce each year. Much of the information included in the CCR is obtained from tests performed by the State Department of Health for the City of Rio Rancho, the City's contracted utilities operator, and the New Mexico Environment Department.

In general, Rio Rancho's water is of a very high quality. Any detected contaminants were below the EPA's Maximum Contaminant Levels (MCL) and no violations have been assessed. One contaminant, arsenic, is present in the supply and is of concern because of a change in EPA regulations. Prior to 2001, Rio Rancho water supply was below the EPA's MCL for arsenic of 0.05 mg/L (50 parts per billion). In 2001 EPA lowered the MCL for arsenic to 0.01 mg/L (10 parts per billion) and gave public water systems until January 2006 to meet this lowered standard. Arsenic is a drinking water contaminant that occurs naturally in groundwater. It is especially common in areas of the southwest with New Mexico having some of the highest natural

concentrations. Much of the City's water contains arsenic at levels that exceed the new MCL of 0.01 mg/L. Currently, eleven of the City's nineteen wells have arsenic concentrations in excess of the 0.01 mg/L standard. Additionally, experience in the Middle Rio Grande Valley is that with continued pumping, arsenic levels in

individual wells will increase over time and may result in additional Rio Rancho wells requiring treatment. Given the high percentage of wells that require treatment, it can be assumed that future wells will most likely require treatment to remove arsenic as well.

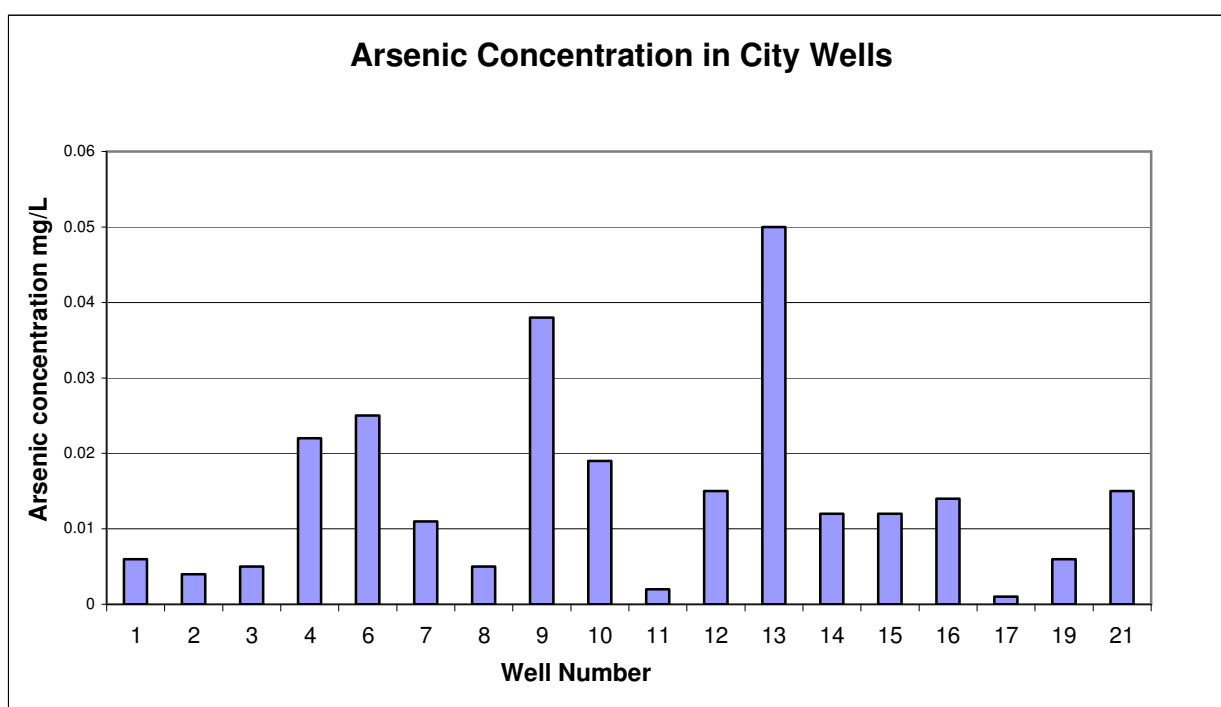


Figure IV-5. Arsenic Concentrations in City Wells

The City has hired an engineering consultant to evaluate treatment technologies and to make recommendations for the best technology for arsenic removal in the City system. Over the past several years, two pilot programs have been operated on the system to

demonstrate technologies. It is estimated that the capital cost of removing arsenic in the City water supply could reach \$30 million, with an operating cost of \$1 million per year.

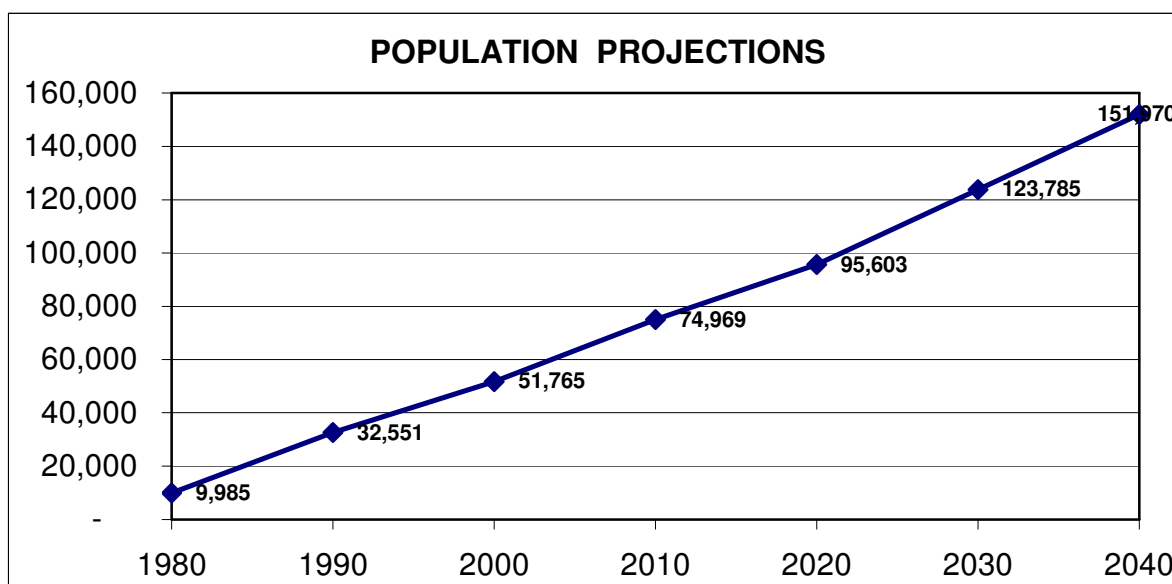
V. POPULATION AND DEMAND PROJECTIONS

Population Projections

Rio Rancho is the fastest growing city in New Mexico and one of the fastest growing in the United States. From 1980 to 2000, the population grew from 10,000 to 52,000. Because of Rio Rancho's affordability and

decidedly livable climate, growth is not expected to slow in the coming years. By 2040, the population is likely to reach more than 150,000.

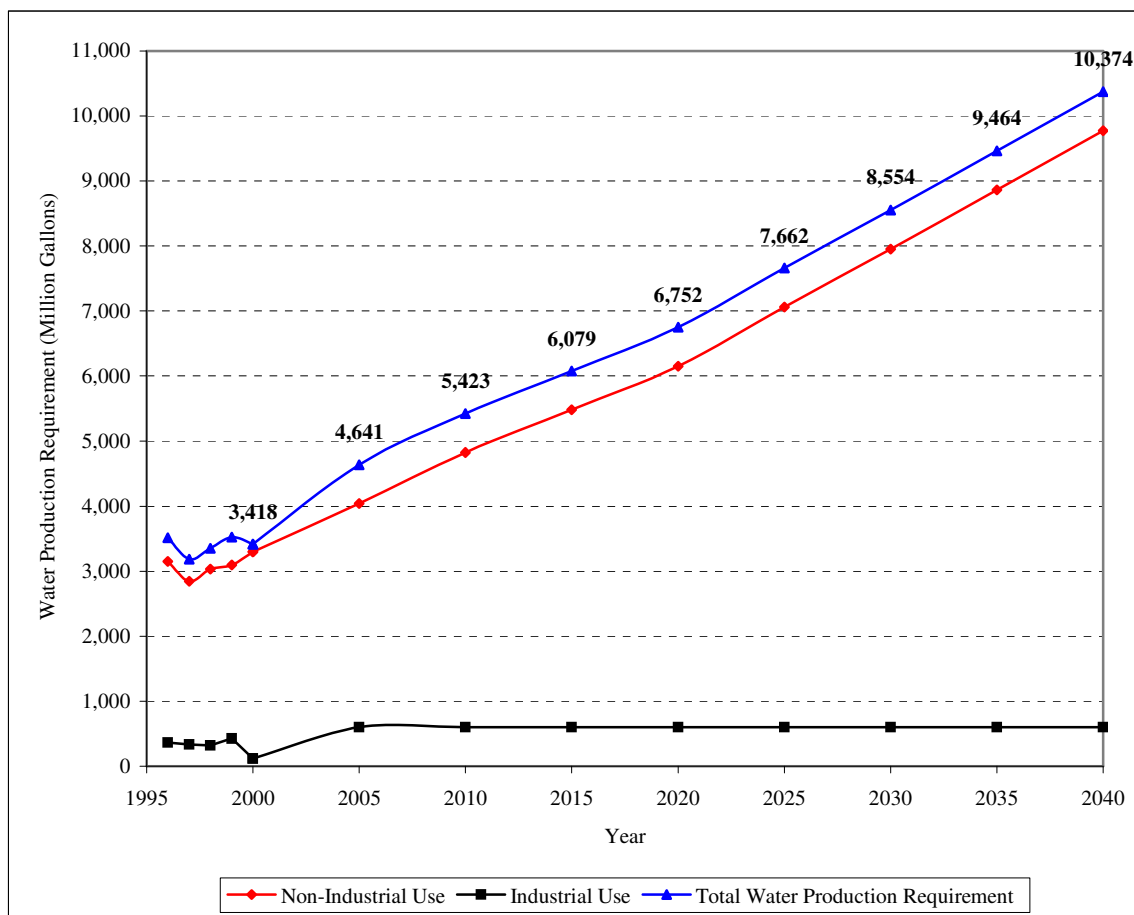
Figure V-1. Population Projections



Recent calculations indicate that the per capita water use (total water pumped divided by the population served) is about 181 gallons per capita per day, or a little over 66,000 gallons per year. Assuming this same usage pattern

through 2040, the volume of water required for 150,000 residents would be over 10 billion gallons per year, or nearly 31,000 acre-feet per year.

Figure V-2. Projected Water Demand



Water Resources and Rights

New Mexico has a limited amount of water. According to the State Engineer, all of New Mexico's groundwater basins have been fully appropriated, and no additional water rights can be allocated. Prior to 2002, Rio Rancho was permitted to pump 14,439 acre-feet annually, or 4.7 billion gallons per year (see Figure V-3). The City was using approximately 75 percent of this water

annually. The water rights for this 14,439 acre-feet are to be purchased over time, on a schedule based on sophisticated groundwater modeling and geo-hydrologic considerations. This is a very complex issue, and is explained more thoroughly in the Existing Conditions Report (Wilson & Company, April 2002).



Figure V-3. Permitted Pumping

State Engineer File Number	No. of Permitted or Proposed Wells	No. of Drilled, Equipped, and Operating Wells	Annual Water Pumping	
			Acre-Feet	Million Gallons
RG-06745	35	17	12,020.16	3917
RG-26259	1	1	2,419.51	788
Pre-2002 Total			14,439.67	4705
2004 Permit			12,000.00	3910
Current Total	36	18	26,439.67	8616

In 2002, the State Engineer approved a permit application, submitted in 1993, for an additional 12,000 acre-feet of pumping rights for the City. In this permit, Rio Rancho was allowed to pump an additional 12,000 acre-feet per year, but the Permit required the City to purchase consumptive water rights in the full amount of the consumed water prior to pumping, contrary to traditional OSE permits which were based upon impacts to the surface water.

The City appealed the proposed permit in District Court and in 2004 a settlement was reached with the Office of the State Engineer. The settlement agreement requires the City to purchase and transfer 728 AF of consumptive water rights every five years, for a planning period of 55 years. At the end of the 55 year period the agreement will be reviewed. Contained in this settlement is language that ties the amount of water rights required to the volume of “return flow” from the City’s

wastewater treatment facilities. Currently, Rio Rancho’s Wastewater Treatment Plants #2 and #3 return water to the Rio Grande at a rate of approximately 3,000 acre-feet per year. The permit establishes a baseline for “return flow” of 38% of the annual pumping. Significant increases or decrease from the 38% will impact the required amount of water rights to be purchased.

The permit also acknowledges the City’s desire to employ aquifer storage and recovery (injection of reclaimed water into the aquifer) and allows a mechanism for including those volumes in return flow credits.

A number of other conditions addressing maximum pumping from specific well groups, development of a return flow plan, and periodic reporting on the City’s 40 Year Water Plan and Water Conservation plan are included in the new permit.



VI. WATER REUSE

Water Reuse Strategy

This section provides a summary of the Water Reuse Strategy and outlines the goals for implementing the Water Reuse Program. The City has adopted a community vision, which values innovation and proactive approaches in water management to provide a sustainable water future. The mission statement of the strategy is that Rio Rancho will be a model community in the Desert Southwest with a reuse program that effectively secures its water future.

Future Water Supply Challenges

In “*Framework for Public Input to a State Water Plan*” (OSE, 2002), the Office of the State Engineer (OSE) simply states that demand exceeds supply. By this statement, the OSE essentially considers that the supply framework is stretched beyond capacity and there is no new water available within many of New Mexico’s over-appropriated basins. Recent drought conditions, in-stream flow demands to protect endangered species, interstate compact deliveries, and the unadjudicated claims of senior water rights holders add complexity and uncertainty regarding our state’s future water supply.

Water rights transfers to expand the water supply system are expensive, and the process of acquiring these water rights is lengthy, subject to hearings and fraught with regulatory and permitting challenges. Further, a recent U.S. Geological Survey study has documented the limitations of the region’s groundwater supply and modeled depletion effects from pumping, underscoring the importance of conserving and extending the City’s limited available water resources.

New supply initiatives must come from the retirement and transfer of existing uses, developing alternative sources such as desalination of brackish groundwater, and/or from improvements to use our existing water resources more efficiently. These water supply initiatives must respect the limits of water availability and demonstrate that demands will be met within the limits of the available water supply.

The Water Reuse Strategy seeks to maximize beneficial use of current supplies through the recycling of highly treated wastewater (reclaimed water). In

this way, water reuse serves as a key strategy to conserve and extend the limited available supply to meet growing water demands. Rather than relying solely on the retirement, acquisition, and transfer of additional water rights to expand the water supply, it becomes more cost-effective to maximize beneficial use of the City's available water resources.

The Need for a Reclaimed Water Plan & Aquifer Recharge Strategy

The City is committed to the efficient use of its water resources and recognizes the significance of developing a Water Reuse Strategy as an integral part of its overall water resources planning effort. The approach for the strategy is to advance best management practices for the use of reclaimed wastewater to sustain the community's limited water supply and provide a path towards self-determination and better local control in managing those resources.



The Chamisa Hills Golf Course is one of two water users who currently utilize treated effluent for irrigation.

The Water Reuse Strategy, adopted by the City Council under Resolution 01-004, called for the development of a Water Reuse Plan that includes alternative uses, a regulatory review, a recommended facility plan, and a phasing schedule. This resolution established a goal of full beneficial use of reclaimed wastewater and recycling of water, including aquifer recharge, by the year 2008.

Benefits of Water Reuse - Conservation of Limited Water Supplies

Given Rio Rancho's population growth projections, the long-term water demand is expected to triple over the next 40 years, outpacing supply. In 2001, Rio Rancho's permitted water supply of 14,420 acre-feet per year (af/yr) was projected to meet the City's needs for another three to ten years,

depending on the growth rate and on conservation (efficiency) measures.

The Water Reuse Strategy calls for maximizing the use of reclaimed water within the City's service

area, including landscape irrigation and commercial and industrial uses to

conserve the limited available supply. Converting existing water demands such as turf irrigation at parks, schools and sports fields will provide immediate reductions in pumping (water diversions) by replacing these demands with safe non-potable reclaimed water. The reclaimed water supply will automatically increase as economic and population growth occurs in the community and will provide a drought-proof and reliable supply to meet future non-potable demands.

Benefits of Water Reuse - Extending Limited Groundwater Supplies

Another primary focus of the Water Reuse Strategy is to augment and replenish the City's groundwater supply.

Advanced water treatment of the reclaimed water is proposed, to provide drinking water quality suitable for aquifer recharge. This innovative

water reuse program seeks to maximize beneficial use of current supplies through recycling of water, rather than compete with surrounding communities for limited additional water rights. The goals of aquifer recharge include:

- Improve aquifer sustainability
- Reduce surface water depletions in the Rio Grande & Jemez River

- Reduce the local rate & magnitude of groundwater declines
- Maximize water rights credits based on aquifer recharge

Selected Water Reuse Facilities

Under Phase I of the Water Reuse Feasibility Strategy, a technical assessment was performed, including treatment needs, reclaimed water market analysis, regulatory requirements and water rights analysis. Phase II included the development of alternatives, including reuse treatment and distribution facilities for each alternative, and a conceptual cost estimate. The preferred option evaluated



The City of Rio Rancho Sports-Plex is one opportunity to use reclaimed water instead of the potable water currently used for irrigation.

under Phase II includes centralized treatment and a backbone reclaimed water system to capture the majority of the existing demands in the service area that can be converted to the reclaimed water system. Under Phase III, the City will be

selecting the water reuse facilities to be designed and constructed, including the final project phasing for expansion of the water reuse system. Shown below are charts that

compare the Preferred Option evaluated in the feasibility study with the current No-Action Alternative.

Figure VI-1. Reclaimed Water Use Using Preferred Reuse Alternative

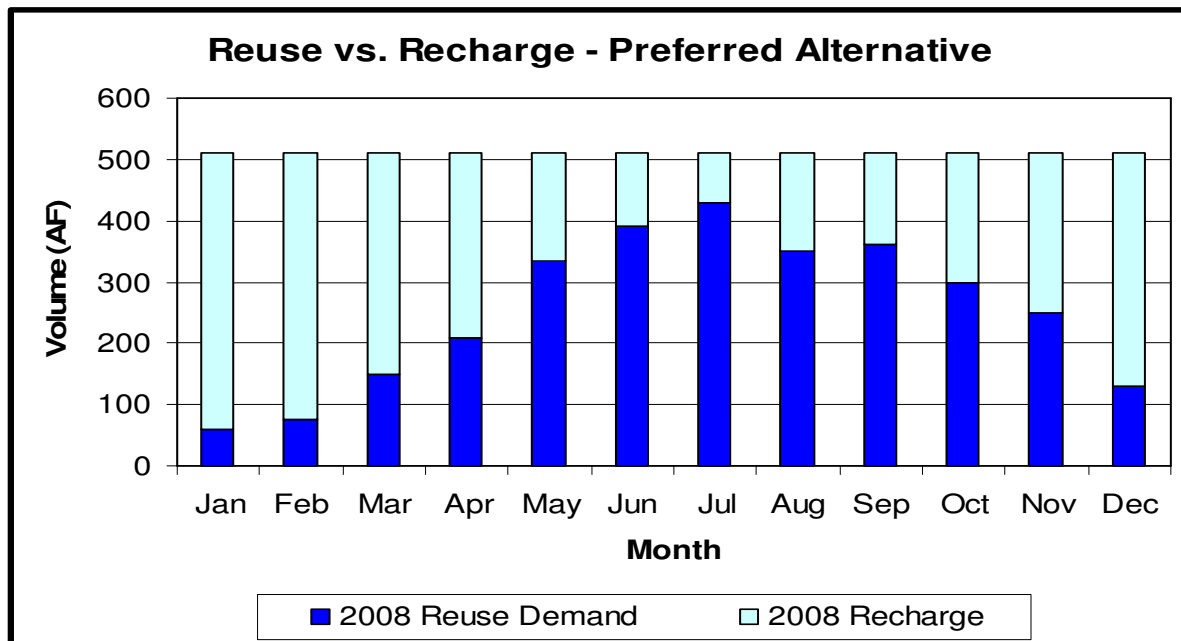
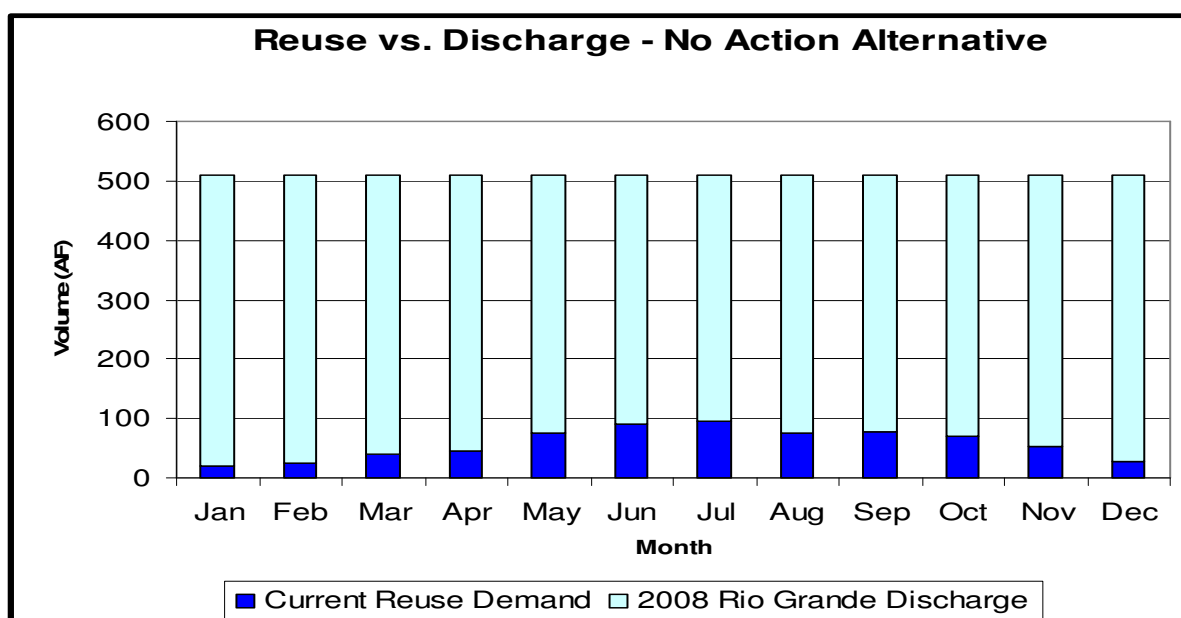


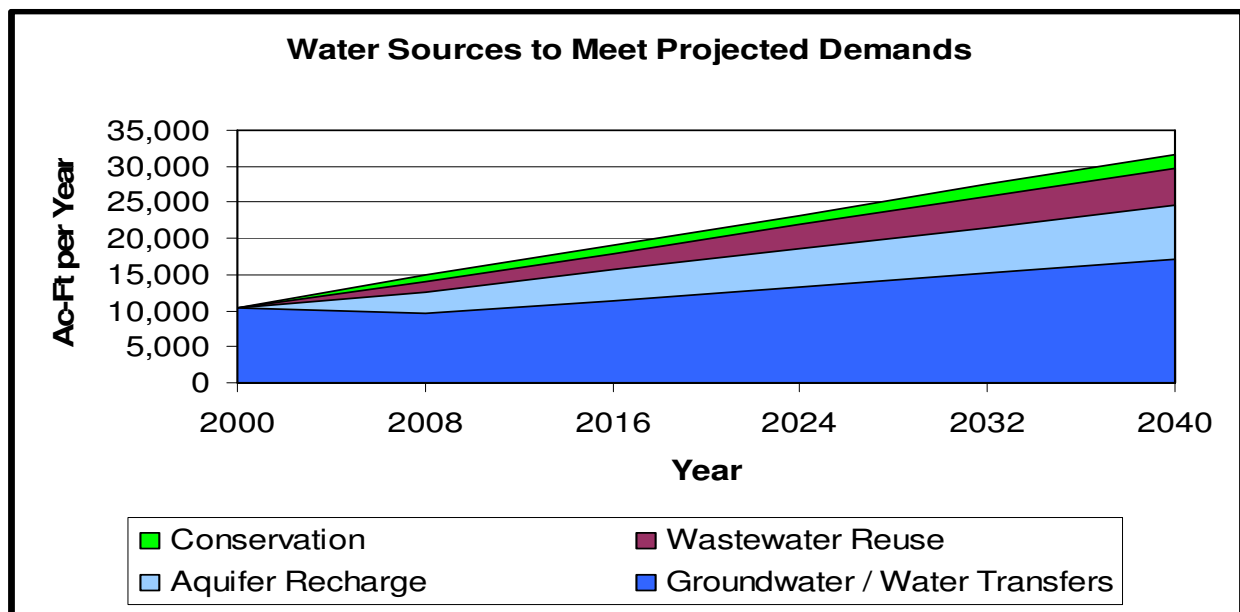
Figure VI-2. Reclaimed Water Use Using the No Action Alternative



The impact of the Water Reuse Program on meeting the City's projected demands over

the 40-year planning period is illustrated in the Figure IV-10 below.

Figure VI-3. Cumulative Impact on Groundwater Pumping under Preferred Scenario



Water Reuse Program Costs

Conceptual cost estimates have been prepared for both the initial development of a reclaimed water system and for advanced

treatment for aquifer injection. Listed below are the summary costs.

Figure VI-4. Reclaimed Water Facility Capital Costs

Reclaimed Water Facility Components	Cost
Improvements to Wastewater Treatment Plant 1	\$ 1,900,000
Improvements to Wastewater Treatment Plant 2	\$ 4,000,000
Transmission & Distribution Pipelines	\$ 5,600,000
Storage Reservoirs	\$ 1,800,000
Engineering, Administration, Contingencies	\$ 6,000,000
TOTAL ESTIMATED COSTS	\$ 19,300,000

Figure VI-5. Capital Costs for Injection Alternative

Injection Alternative Components	Cost
Advanced Water Treatment Facility	\$ 12,300,000
Brine Evaporation Facility	\$ 9,800,000
Aquifer Recharge Wells	\$ 19,200,000
Engineering, Administration, Contingencies	\$ 18,600,000
TOTAL ESTIMATED COSTS	\$ 59,900,000

Issues

There are many issues that must be addressed and resolved in order to achieve an effective Water Resources Master Plan. The Rio Grande gives life to plants, animals and people within New Mexico and far beyond its borders. Endangered species, such as the Silvery Minnow, have declined in population in recent years, blamed on decreases in the river's water level. The Bosque, i.e., the native riparian forest of plants and animals that coexist with the river along its banks, has also become unstable over time. Several management plans are being considered in order to restore and maintain a healthy environment for the Bosque's future.

People are also among the beneficiaries of the Rio Grande. The river provides water for life and agriculture in Colorado, Texas, New Mexico and Mexico. The Rio Grande Compact is an agreement made with the U.S. Government in 1938 that allocates water to each of these entities. As the water demand increases, it will become increasingly difficult to fulfill the requirements imposed under this agreement. In addition, water users within our state are continuously debating and challenging one another for water rights. Fair solutions must be found for all of these people, and agreements must be reached.



VII. RECOMMENDED POLICIES TO IMPLEMENT THE WATER RESOURCES MANAGEMENT PLAN, AS DEVELOPED BY THE STEERING COMMITTEE AND PUBLIC PROCESS

VII.1 Policies Related To Conservation

Water conservation is the cornerstone of the Water Resources Management Plan. Conservation will delay the need to acquire additional water and water rights and allow additional growth to occur within the existing permitted pumping and water rights. Policy recommendations related to water conservation are listed below. These policy recommendations are directed at reducing the per capita use of water in Rio Rancho.

The measure of "per capita use" of water is a standard measure of a community's use of water, calculated by dividing the total water pumped from the supply wells, by the population served by the public water system. As previously stated, the annual per capita use in Rio Rancho is 181 gallons per capita per day (gpcd). Water uses include Residential, Industrial, Commercial, City/Public, and Unaccounted Water. Per capita use is widely used as a number for comparison with other systems, but any comparisons must be based upon an understanding of the method of calculating per capita use for each system.

Given the concern for water resources statewide and the lack of "new" water available, the Committee felt that conservation of the existing resource was the highest priority for the City. The Steering Committee eliminated only a few alternatives related to conservation, reflecting the desire to utilize any and all means to conserve water.

Recognizing the importance of a vigorous water conservation program, the City of Rio Rancho commits to provide the funding, staff, support, and resources needed to accomplish the following:

VII.1.a. Reduce "per capita" water usage from 181 gallons per capita per day (gpcd) to 150 gpcd, (a 17% reduction) within three to five years by implementing the policies embodied in the Water Resources Management Plan.

This recommendation represents the overall goal of the water conservation recommendations, that is, to reduce per capita water usage. It would require calculating

and tracking per capita usage. Per capita use is a measurable value that can be used to evaluate the effectiveness of other recommendations as well as compare the City's usage to other communities.

VII.1.b. Evaluate the causes of unaccounted for water (UAW) and reduce UAW from 16% to below 10% of total water pumped within three years.

Recent data from the Utilities Department suggests that the unaccounted for water has varied considerably over the past years and has increased in recent years. Unaccounted for water is the difference between the municipal well meter readings (water pumped) and metered water sales (water sales). Industry standards suggest that unaccounted for water should be less than 10% of total water pumping. Unaccounted for water includes water from system leaks, un-metered fire fighting, irrigation, well flushing, and system flushing, and therefore it can never be eliminated totally. Reduction of unaccounted for water use will create additional water for use by the community.

VII.1.c. Pass a comprehensive Water Conservation Ordinance, which includes effective enforcement mechanisms of that ordinance including punitive measures that reflect the gravity of water conservation and commitment of the City within one year. Enforcement of the Ordinance will not exclude the City itself on City-owned property.

The Steering Committee was vocal about the need for strict enforcement of the current



An illustration of attractive xeriscaping in a commercial setting.

water conservation code as well as recommended enhancements of that code. The Committee recognized that codes and regulations are only as effective as the enforcement behind those codes. The members discussed many examples of water waste. There was consensus that the City does not have an effective enforcement mechanism for enforcing the code and forcing compliant behavior. Reduction of water waste yields additional water for the community.

VII.1.d. Initiate a program to provide home and business water conservation audits in support of achieving the water conservation goals within two years.

The Steering Committee felt that many users are unaware of the volume of water they use, opportunities for conservation, and the resulting benefit to the community. Many communities have adopted utility supported water audits as a method for educating the public and demonstrating the possibilities for reducing consumption. The Committee felt that providing water audits with alternatives for water consumption would assist in the goal of reducing the per capita water consumption.

VII.1.e. Form a strong, adequately staffed water conservation program with resources necessary to promote and implement water conservation initiatives within two years.

Many of the alternatives suggested revolve around an adequately staffed and effective water conservation program. Without opportunities for creating new water, the most

effective strategy for securing future water supply is water conservation. To meet this

challenge, the City must have the staff and resources required to reach out to the public and implement the various recommended programs.



Participants at a Water Resources Planning Public Meeting review informational posters.

VII.1.f. Fund the design and placement of graphical displays in City facilities and on billboards to show water use, goals for water savings, and water conservation initiatives within two years.

The Committee felt it important to elevate the issue of water conservation in the minds of all Rio Rancho residents. This alternative suggests one method focusing awareness on water use and conservation. The graphics would reflect municipal water use goals for the City and track the performance of the community.

VII.1.g. Provide space and construction of special displays at City facilities demonstrating new equipment and water conserving hardware for homes and businesses within two years.

Similar to recommendation VII.1.f., this recommendation is directed at increasing public awareness of the tools available for conserving water.

VII.1.h. Set the example for water conservation. All City sites will be demonstration projects for attractive xeriscaping within six to ten years, incorporating rainwater harvesting on all new sites and existing sites where feasible.

This recommendation recognizes that the City should take leadership in conserving water and communicating that effort to the residents. Specifically, the City should convert to xeriscape, where possible, and use the numerous facilities spread throughout the city (such as wells, lift stations, and DPS facilities) to demonstrate the attractiveness of well designed xeriscape. By demonstrating quality xeriscape design, the Committee felt that residents would be more willing to convert existing turf. The building codes section of this report provides recommendations for encouraging xeriscaping.



Xeriscaping at the City Library

VII.1.i. Encourage and educate residents about onsite rainwater harvesting, use, and sophisticated irrigation controls within three to five years.

Rainwater harvesting is one method of reducing the use of potable water for outdoor irrigation. There are different approaches, from collecting runoff from rooftops in barrels or cisterns, to directing runoff into planted areas normally irrigated with potable water.



Water harvesting at the Southern Sandoval County Arroyo Flood Control Authority offices.



One inch of rain on a 2,500 square foot roof produces 1,500 gallons of water. This recommendation suggests that the City take an active role in educating the community on the benefits and methods of rainwater harvesting. The City should encourage the use of moisture sensors, wind gauges and other technical resources to manage the efficient use of irrigation in locations where turf conversion is not desired, such as parks and private property on which the owners choose to maintain turf. This recommendation should be implemented as a City policy and include all Departments with budget considerations for development costs. The Utilities Department would provide information and resources to the public.

VII.1.j. Expand the current rebate program, within three to five years, to include incentives and/or rebates to existing customers for investing in water conserving practices in balance with the value of water savings.

This broad recommendation encourages the City to provide incentives for investment by residents and businesses in water conservation. Incentives could include rebates, recognition in newsprint or City meetings, or support for water conserving businesses.

Water conserving efforts include:

- converting turf to xeriscaping
- installing water conservation hardware
- converting to low-flush toilets (currently in effect)
- installing hot water recirculation
- installing low water use appliances (partially in effect)
- installing moisture sensing irrigation systems
- installing rainwater harvesting systems
- installing efficient gray water reuse systems
- other documented water reduction approaches

The Committee recognizes that the Utilities already offer some rebates, which are directed primarily at residential users. The committee felt that incentives should be developed for the business community.



VII.2 Policies Related To Education

Public education is a vital component of any management strategy that requires voluntary participation of a large population. The Committee felt strongly that a significant educational program would be essential to the long-term management of the City's water resources.

The City of Rio Rancho recognizes the value of education and will act to:

VII.2.a. Take the lead in consulting with and establishing a partnership with Rio Rancho Public Schools to implement a robust water resources educational curriculum. The initial focus will be to implement, within two years, a formal program at two grade levels (i.e. third grade and seventh grade) based upon currently available commercial curriculums.

This recommendation encourages the City and Rio Rancho Public Schools to collaborate in the development of a program for educating youth on water issues. The curriculum should address New Mexico's limited water resources, conservation, water quality and management of the resource. The Committee suggested that the City and Schools target two age levels for concentrated educational programs utilizing commercially available educational program materials. In implementing this recommendation, consideration must be given to funding for materials, instructor wages, and the cost of developing a focused program that would be sustained over the years.

VII.2.b. Develop a "packaged" educational/informational program, within three to five years, to deliver to seniors, civic and business groups addressing the water issues facing Rio Rancho and the City's program for managing this resource.

The Committee recommended the development of a packaged program appropriate for a wide variety of audiences to communicate the urgency of the City's water situation and City initiatives for resource management. Ideally, the program would be a stand-alone type presentation that would not require staff time for presentations. This recommendation would require the development of a video tape or computer-based presentation highlighting the issues facing Rio Rancho in Water Management. Professional services may be required to develop a quality program suitable for a wide range of audiences.



VII.2.c. Develop and distribute educational materials about septic tank maintenance and its relationship to aquifer protection within three to five years.

It is estimated that over 5,000 City residences are served by on-site septic systems. Additional recommendations regarding on-site systems can be found in Section VII.3. Recognizing the potential groundwater quality impacts from septic system discharges, especially improper operation and maintenance, the Committee felt it important to develop or collect existing training materials for onsite system owners. This recommendation would involve collecting existing information, brochures and flyers and directing them to on-site systems owners through direct mail or during a new account application. Should existing information be insufficient to meet the City's needs, new material could be prepared specifically addressing the concerns for Rio Rancho.

VII.2.d. Develop and distribute educational materials within three to five years regarding water-efficient evaporative coolers, cooler maintenance, and their relationship to water usage.

Similar to recommendation VII.2.c, this recommendation focuses on the collection and preparation of print material to explain the potential waste of water in inefficient evaporative coolers and cooler pumps. New pumps that automatically "bleed" water to minimize dissolved solids build-up on cooler pads have the potential to waste thousands of gallons of water during a cooling season. Additionally, alternative technologies are available to minimize the use of water for cooling. The Committee felt that by educating residents about water use for cooling and alternatives, significant water savings could be realized. This recommendation would involve collecting existing information, brochures and flyers, and preparing new specific materials directed at local conditions. Materials could be delivered by direct mail or as brochures available at the City's water office.

VII.2.e. Review and improve the water billing component that compares customer class average use and prior year use to individual use, as a method of communicating relative individual water usage habits.

Information regarding individual water use as compared to customer class averages is currently provided in the water bills. The Committee felt this practice is important to continue and that its effectiveness should be evaluated.



VII.3 Policies Related To Utility System Improvements and Enhancements

A number of actions should be taken by the Utility Department that will assist in the efficient use of water resources. The following policies focus on initiatives for the utility in addressing resource management that fall within the jurisdiction of the Utility Department.

The City of Rio Rancho recognizes that the utility must advance to meet the demands of the Water Management Plan and shall support the utility to:

VII.3.a. Develop Master Plans identifying the infrastructure requirements and locations for the extension of water, wastewater, and reclaimed water supply throughout the incorporated City Limits within three to five years.

To fulfill many of the prior recommendations in an organized manner, the Committee recommended the development of specific Master Plans for the extension of utilities throughout the City Limits. The Master Plans would guide the City utility extensions in an orderly manner, provide tools for future development, better insure that developer extension of utilities were based upon a City driven plan, and create a framework for decision making for utility extension.

VII.3.b. Within two years, reevaluate the water rate structure to include a cost for the purchase of water rights, protection of ground water supplies, and expenses anticipated for future water rights acquisitions, transfers, and related issues.

The Steering Committee spent a great deal of time discussing the need for developing a revenue stream to purchase water rights and cover associated costs. Recognizing the need and available amount of existing water rights, the Committee felt it imperative to begin funding these acquisitions as soon as possible to minimize cost impacts to the users. Although a variety of funding schemes were discussed, the Committee chose to limit its recommendation as stated, and allow the policy makers to determine the specific mechanism.

VII.3.c. Aggressively pursuing the purchase of Water Rights, including staff and resources for seeking, negotiating and acquiring those available rights.

In keeping with Recommendation VII.3.a, the Committee felt it was imperative to pursue the purchase of additional water rights actively, in light of the recent State Engineer



rulings. The Committee anticipates that water rights will continue to increase in cost and become more difficult to acquire. Every effort should be made to identify, acquire, and transfer water rights to the City, regardless of immediate need. Clearly, there is a long-term need for additional rights, and the City should be proactive in its efforts. At present, the City purchases water rights as they are identified. The recommendation suggests that additional efforts to solicit water rights, identify opportunities, evaluate the validity of the rights, and transfer them to the City.

VII.3.d. Institute a rate structure that has appreciably higher rates for relatively high levels of consumption within each customer class (more expensive for greater volumes) within two years.

The Steering Committee felt that large water users, relative to customer class and conservation efforts, should be required to pay more for their excessive use of water. However, rates should be structured to prevent penalizing large families or large consumers who practice water conservation. One mechanism to achieve this objective is through an inclining block rate, with significantly higher rates for higher volumes. An example of when such a rate would apply is large turfed areas for aesthetic used solely for aesthetic purposes (with an exemption for parks and sports fields). The current rates include a minimal increase for large volume users. However, the Committee considered the present rate structure ineffective for curbing the excessiveness that this recommendation targets. The ordinance would need to provide mechanisms for justifying large uses as necessary that would be outside of the scope of the elevated rates.

VII.3.e. Expediently implement the Water Reuse Strategy including large- and small-scale water reuse programs, reuse for irrigation and other non-potable uses and development of reuse distribution facilities to major water users. Construct initial distribution and storage facilities within three to five years.

The Committee received a presentation regarding the City's Water Reuse Study and general policy. The Committee strongly supports implementation of the reuse strategy as a means of reducing the dependency on the aquifer. A number of recommendations focus on reuse, which are incorporated above.

VII.3.f. Pursue advanced treatment technologies for water reuse applications and aquifer re-injection programs in the City.



Members of the Steering Committee discussing micro-filtration and reverse osmosis processes on a tour of the Chandler AZ reclaimed water treatment facility

In addition to reuse, the Committee recommended moving forward with strategies for the returning of treated water to the aquifer. As with the previous recommendations, the Steering Committee felt that infiltration and/or injection of water into the aquifer would help replenish and protect the aquifer from excessive pumping.

Recognizing that the City is pursuing this course of action, the Committee included this recommendation to show its support for the concepts of infiltration and injection. It was noted, however, that there are regulatory and water quality issues related to re-injection. The Committee, in recommending pursuit of re-injection methods, is concerned with the technology and safety considerations of a re-injection program. Several members of the Committee reviewed technologies being used in the Phoenix, Arizona metropolitan area, including reverse osmosis, activated carbon, and ultra-violet disinfection. This recommendation communicates the Committee's desire to utilize advanced technologies that would ensure that re-injection does not compromise groundwater quality.

Onsite Systems

It is in the public interest to protect the quality and integrity of the groundwater that supplies drinking water to the City of Rio Rancho. Water quality is integrally linked to protecting the aquifer to protect Rio Rancho's future water resources. Therefore, the City of Rio Rancho will institute the following policies.

VII.3.g. To extent allowed by State law, the City will actively manage domestic wells within the City Limits, develop standards for siting, construction, metering and water quality monitoring for domestic wells, and prohibit drilling of domestic wells where there is reasonable access to the public water supply.



The Committee recognizes that the City water system does not serve major portions of Rio Rancho. The Steering Committee therefore does not support the total prohibition of domestic wells. Domestic wells are not currently metered for consumption and every well drilled creates a direct pipeline into the aquifer that can be a source of contamination for many water users. Later recommendations speak to the need to plan and develop utility infrastructure to minimize the need for onsite systems, however it is estimated that approximately 2,500 domestic wells currently exist within the City of Rio Rancho. Most of these wells were installed under State Permit without the involvement of the City for protection of the municipal water supply.

VII.3.h. Take action to limit and reduce the number of well penetrations into the aquifer by:

- 1. Extending water utilities into areas not currently served by the City water system as quickly as possible.**
- 2. Encourage property owners to connect to the City system when City water utilities become available to their properties.**
- 3. Encourage property owners to properly plug and seal their domestic well, for groundwater protection, at such time as the well is no longer used or requires rehabilitation.**

To limit the potential for contamination of the public water system or aquifer, the Steering Committee recommends that when utilities become available, customers should connect to the public utilities. Comments in the Public Meetings were supportive of this recommendation, with the condition that residents should receive some consideration for their investment, because public utilities were not available at the time they constructed their homes.

VII.3.i. Take action to limit and reduce the potential for groundwater contamination from septic systems by:

- 1. Extending wastewater utilities into areas not currently served by the City sewer system as quickly as possible.**



2. **Encourage property owners to connect to the City system when City sewer becomes available to their property, and to decommission any onsite facilities.**

To limit the potential for contamination of the aquifer, the Steering Committee recommends that when sewer utilities become available, customers should connect to the public system. Once connected to the public sewer system, septic systems should be pumped dry and appropriately decommissioned.

VII.4 Policies Related To Regulatory and Legislative Actions

There are rules and regulations outside of the City's jurisdiction that limit the City's ability to manage its water resources. Communities across the state are recognizing the need to amend State procedures to allow cities a greater role in managing local water resources.

The City of Rio Rancho will actively work to create change in traditional state policies.

- VII.4.a. The City will work with the State Engineer's Office and lobby the State Legislature to expand the local authority to permit and regulate domestic wells.**

- VII.4.a.1. The City will support the State's effort to change State law for new domestic well allocations from 3 acre-feet to 1.5 acre-feet per year, and to require meters and water use reporting, for data purposes, on new domestic wells.**

This recommendation suggests that the City should actively work with the OSE to reform domestic well regulations to reflect current thinking about resource management. The specific points, City permitting, reduction in permitted use, and metering of water use, bring the OSE regulations in line with the challenges and requirements facing public utilities. Metering of domestic wells is intended to provide data for resource management and not for revenue generation.

- VII.4.b. The City will actively negotiate with the State Engineer and New Mexico Environment Department to develop forward thinking policies and regulations to encourage infiltration and injection of treated water to the aquifer with accompanying return flow credits.**

The Committee recognizes that current OSE regulations are vague in assigning return flow credits for re-injection or infiltration of treated water, which is of great importance



to the City of Rio Rancho. Further, the Committee believes that recharge of the aquifer is extremely important to the future of Rio Rancho and deserves fair evaluation by the OSE. This recommendation encourages the City to negotiate actively for a reasonable interpretation of return flow credits as it applies to these recharge efforts.

VII.4.c. Rio Rancho will work with neighboring communities to pass legislation to protect water supplies and allocations, and fund studies on water quality and quantity in the Middle Rio Grande basin.

The Steering Committee recognizes that Rio Rancho shares its water resources with surrounding communities, and that each entity's actions with the aquifer have an impact on the neighboring communities. The Committee recommends that the City work with neighboring communities to protect the aquifer and develop scientific, supportable data regarding water quantity and quality.

VII.5.Policies Related To Growth

The City of Rio Rancho is a growing community and the intent of the Water Resources Management Plan is to implement policies that will support the continued growth of the community in a sustainable manner. **To achieve this goal, the following policies related to the community growth will be implemented:**

VII.5.a. New development, whether residential, commercial, industrial or public, will be evaluated, and approval of such development will only be considered when water availability is demonstrated and documented.

A consistent theme in Steering Committee meetings was that any new growth should only be approved contingent upon water availability. There is a general concern that growth could outstrip the City's ability to provide water or, at a minimum, force the decision to expand water delivery immediately to meet growth. This recommendation is directed at the City Council and Staff to continue to consider water rights and water availability when new developments come forward.

VII.5.b. All City planning will consider impacts of water resources in the development of plans, policies and regulations. Future growth will be consistent with water supplies and costs, and compatible with water rights acquisition.

This recommendation addresses future City planning and requests that all City plans balance water supplies, water rights and costs with growth and development goals. The Committee included this recommendation as a means of increasing awareness that future growth is contingent upon water supply and showing their strong concern for balancing growth and water resources.

VII.5.c. The cost of future water supplies and water rights will be acknowledged as a capital expense and factored into the development of impact fees, user rates, and any other financial tools used by the City to fund capital programs.

VII.6.Policies Related To Community Development

The City of Rio Rancho City Development Department is the lead division for establishing planning, zoning, subdivision and development requirements and, as such, must be an integral participant in the management of water resources. Policies set in Community Development guide the growth of the City. The policies must be sensitive to the critical limitations on water resources and reflect the need to maximize efficient water use in every aspect possible.

Recognizing the central role of the City Development Department in the future of the community, the City will act to:

VII.6.a. Perform a detailed review of all planning and zoning requirements as they relate to water use, and revise the requirements to reflect the policies of the Water Resources Management Plan. The review and revision will be a joint effort with the Utilities Department and will be completed within two years.

During the course of the Steering Committee meetings and public meetings, members or participants cited a number of building codes presumed to be in conflict with water resource



Commercial development is being encouraged in the City to increase services and gross receipts tax revenues.



management. As an all-encompassing recommendation, the Committee felt that the building codes should be reviewed and revised to reflect the general goals of the Water Resources Management Plan. A citizen task force, staff, or consultants could accomplish the revision of the building codes to require water conservation in all residential, commercial and industrial facilities.

VII.6.b. Require specific categories of businesses and/or individual businesses that use large volumes of water to file a water conservation plan with shared approval by City Utilities and City Development.

New businesses that come to Rio Rancho should be educated about water resources issues facing the City, and large water users should be required to develop a water conservation plan documenting their methods for conserving water.

VII.6.c. Require a water conservation plan as part of every new development's master planning requirements. Recognizing the current increase in development activity, this requirement will be implemented as quickly as practical.

The City currently requires master plans for all new developments. The Steering Committee felt that the master plan should include a requirement for water conservation within the development.

VII.6.d. Increase the number and frequency of neighborhood parks, irrigated with reclaimed water, as an alternative to turf yards and to assist in the reduction of landscape irrigation. A policy developed jointly by City Development and Parks and Recreation Departments will be implemented within three to five years.

Recognizing that grassed play areas are important to local residents with children, the Committee recommended that more parks could serve as an alternative to turf residential yards. The parks would need to be conveniently located, which suggest more, smaller parks throughout neighborhoods. This recommendation would require support from the Parks and Recreation Department who are responsible for park maintenance.

VII.6.e. Within two years, revise current ordinance and policies to require new developments (residential, commercial industrial and institutional) to incorporate:

- xeriscaping



- **water conservation hardware**
- **low-flush toilets**
- **hot water recirculation**
- **low water-use appliances**

and encourage the use of:

- **moisture sensing irrigation systems**
- **rainwater harvesting systems**
- **gray water reuse systems**
- **other equipment, systems, processes, and methods for water conservation**

This broad recommendation encourages the City to require water conservation through the building codes. Looking at the projected growth for the Rio Rancho area, the Committee felt it was a critical time to implement water conservation through the building permit process.

VII.6.f. Establish design specifications and water budgets for all new golf courses, common landscape areas, and parks within three to five years.

The Steering Committee felt that, for irrigation-intensive land uses, the City should develop design standards and water budgets that would better ensure efficient use of water resources. Standards could include ratios of turf, types of turf, onsite storage requirements, and use of reclaimed water as examples.

VII.6.g. Evaluate the feasibility of dual distribution systems (potable and reclaimed water) for all new developments.

In keeping with its recommendations regarding reuse, the Committee suggests that there be an evaluation of the cost and benefit of dual piping systems in all new subdivisions.

VII.6.h. Begin immediately to utilize only drought-tolerant plants in parks, medians and similar public areas.

This Committee recommendation is designed to support current efforts to use xeriscape in public areas.